WHAT IS CLAIMED IS

1. A heat treatment apparatus comprising:

a stage for placing an object to be heat-treated and coated by a coating solution;

a heating unit for heating the object placed on the stage and coated by the coating solution from beneath the stage;

a cover portion having a body provided at surrounding sides of the stage, a top plate for closing an upper opening of the body, and an exhaust port from which a gas generated from the coating solution due to the heating of the object is exhausted and covering the object placed on the stage; and

a trap provided between the stage and the top plate, passing the gas generated from the coating solution due to the heating of the object therethrough, and trapping the solids solidified and dropping down after the passage, wherein

the exhaust port is located above the location where the trap is provided.

2. A heat treatment apparatus as set forth in claim 1, wherein the trap has a permeable porous film.

3. A heat treatment apparatus as set forth in claim 1, wherein a cooling unit for cooling gas generated from the coating solution due to the heating of the

object is provided at the top plate.

4. A heat treatment apparatus as set forth in claim 1, wherein a protective part having a nonpermeable film is provided between the trap and the top plate.

5. A heat treatment apparatus as set forth in claim 1, wherein the trap is provided detachably.

6. A heat treatment apparatus as set forth in claim 2, wherein a fluorocarbon resin is used as the permeable porous film.

7. A heat treatment apparatus as set forth in claim 2, further comprising:

a unwinder for unwinding the permeable porous film wound up in a roll to the trap, and

a winder for winding the permeable porous film unwinded from the unwinder.

8. A heat treatment apparatus as set forth in claim 4, wherein the protective part is provided detachably.

9. A heat treatment apparatus as set forth in claim 4, further comprising:

a unwinder for unwinding the permeable porous film wound up in a roll to the trap, and

a winder for winding the permeable porous film fed out from the unwinder.

10. A method of heat treatment using a heat

treatment apparatus, said apparatus comprising a stage for placing an object to be heat-treated and coated by a coating solution; a heating unit for heating the object placed on the stage and coated by the coating solution from beneath the stage; a cover portion having a body provided at surrounding sides of the stage, a top plate for closing an upper opening of the body, and an exhaust port from which a gas generated from the coating solution due to the heating of the object is exhausted and covering the object placed on the stage; and a trap provided between the stage and the top plate, passing the gas generated from the coating solution due to the heating of the object therethrough, and trapping the solids solidified and dropping down after the passage, the exhaust port being located above the location where the trap is provided,

said method comprising the steps of:

placing the object to be heat-treated on the stage; and

heating the object,

to thereby pass a gas generated from the coating solution by the heating through the trap, and trap the solids solidified on a dropping down.

11. A method of heat treatment as set forth in claim 10, wherein in the trap step, a permeable porous

film is used.

12. A method of heat treatment as set forth in claim 10, further comprising a step of cooling gas generated from the coating solution due to the heating of the object is provided at the top plate.

13. A method of heat treatment as set forth in claim 10, wherein a protective part having a nonpermeable film is provided between the trap and the top plate.

14. A method of heat treatment as set forth in claim 10, wherein the trap is provided detachably.

15. A method of heat treatment as set forth in claim 11, wherein, in the trap step, a fluorocarbon resin is used as the permeable porous film.

16. A method of heat treatment as set forth in claim 11, further comprising the steps of:

for unwinding the permeable porous film wound up in a roll to the trap by a unwinder, and

winding the permeable porous film unwinded from the unwinder by a winder.

17. A method of heat treatment as set forth in claim 13, wherein the protective part is provided detachably.

18. A method of heat treatment as set forth in claim 13, further comprising the steps of:

unwinding the permeable porous film wound up in

a roll to the trap by a unwinder, and

a winder for winding the permeable porous film fed out from the unwinder by a winder.